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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,267	11/21/2003	Jean-Pierre Dath	F-756 CON (31223/00020)	2790

7590 04/14/2006

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EXAMINER	
DANG, THUAN D	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/719,267	DATH ET AL.	
	Examiner	Art Unit	
	Thuan D. Dang	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-14 and 16-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-14 and 16-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims 1-3, 5, 12, 13, 16-25, and 30 are rejected under 35 U.S.C. 103(a) as obvious over Haag et al (EP 0034444).

Haag discloses a process of hydrocracking a feedstock in the presence of hydrogen and a zeolitic catalyst, such as ZSM-5 to produce lower molecular weight products (the abstract; page 20, line 22 thru page 21, line 17; page 23, lines 5-26).

Haag does not disclose specifically cracking an olefinic feed. However, one having ordinary skill in art would obviously hydrocrack an olefinic feed as disclosed on page 20, lines 12-15. This is also affirmed by the Board of Appeal Decision mailed on 9/24/2003 (see page 6 of the decision of patent application 09/594,059).

Haag is silent as to how or when the hydrogen is added to the reaction zone. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Haag process by adding the hydrogen to the hydrocarbon feed **before** the contacting with the catalyst to **mix well** materials since it is well-known that mixing well of reactants makes the reaction faster. The hydrocracking of Haag requires the presence of hydrogen. Therefore, hydrogen and hydrocarbon and the catalyst **must be present** at the time the reaction occurs. Otherwise, the hydrocracking process cannot occur when hydrocarbon is present with the catalyst without hydrogen. Further, applicants do not show any criticality for adding hydrogen with the hydrocarbon prior contacting with the catalyst.

Haag does not discloses specific amounts of olefins contained in the feedstock as called for in claims 1, 22, and 30. However, as disclosed in page 21, lines 12-18, and page 23, lines 5-26, one having ordinary skill in the art would have reasonably used olefins feedstocks for the hydrocracking process and expect that using any feedstock containing any amount of olefins would yield similar results.

Haag is silent as to what kind of hydrocarbon compounds, namely propylene contained in the lower molecular weight products are. However, these lower compounds must inherently be lighter olefinic compounds since Haag process is operated by using substantially the same feedstock (olefins versus olefins), under the same reaction (cracking in the presence of hydrogen) and in the presence of substantially the same catalyst (zeolitic catalysts).

In addition, the presently claimed property of the product would obviously have been present once the Haag product is provided. Note *in re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

On page 20, line 27 thru page 21, line 1, Haag discloses that the pressure of the process can be maintained at from atmospheric to 10,000 psig and a mole hydrogen/hydrocarbon ratio of from 0 to about 20. According to these teachings, the appellants' claimed hydrogen or olefin partial pressure must be covered by the same of Haag.

The temperature and LHSV of the reaction are disclosed by Haag on the paragraph bridging pages 20 and 21.

On page 23, lines 5-26, Haag discloses that hydrocracking is operated at **about** 1000°F (537.7°C) which makes the appellants' claimed temperature overlapped.

Recycling of unreacted hydrogen is obvious to one having ordinary skill in the art who wishes to optimize the cost of raw material for the process.

The appellants' claimed feedstock are **well-known** being rich with olefins (see page 13, lines 9-23).

Therefore, it would have been obvious to one having ordinary skill in the art who wishes to practice the Haag cracking process to chemically convert olefins would select feedstocks rich with olefins well-known in the chemical industry such as light cracked naphtha and C4 cut from a FCC as claimed by appellants since it is expected that any olefinic feedstock cracked under the Haag process would yield lower olefins.

Haag is clearly silent as to using dienes for the cracking. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Haag process by removing any dienes, if present, from the olefinic feedstock to arrive at the appellants' claimed process.

On page 23, lines 5-26, Haag discloses that hydrocracking is operated at **about** 1000°F (537.7°C) which makes the appellants' claimed temperature overlapped. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Haag process by operating the hydrocracking at 540°C to arrive at the appellants' claimed process.

Claims 6-11, 14, 26-29, and 31-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haag et al (EP 0034444) in view of Colombo et al (EP 0109060).

Haag discloses a process as discussed above.

Haag does not disclose using silicalites having a Si/Al ratio of at least 180 for catalyzing the cracking reaction. However, Colombo discloses a cracking process catalyzed by silicalite having Si/Al of at least 175 to infinity having a high yield of propylene (see the abstract; see examples).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Haag process by using the silicalite taught by Colombo which has a high yield of propylene.

Examples of Colombo shows that addition to propylene, ethylene and other high olefins are present in the product.

Neither Colombo nor Haag discloses recycling the content of ethylene and higher olefins. However, it would have been obvious to one having ordinary skill in the art to have modified the Haag process modified by the Colombo teachings by recycling ethylene and unreacted higher olefins since (1) Colombo discloses that recycling of C4- olefins (including ethylene) formed during the reaction the conversion to propylene will be enhanced (col. 3, lines 28-30) and (2) recycling of unreacted olefinic reactants will decrease the cost of raw material. Further, it has been held that recycling of hydrocarbons is obvious. *In re Marsheck* 169 USPQ 721 (CCPA 1971).

In exemplified processes, Colombo can produce products having the appellants' claimed propylene yields.

Response to Arguments

Applicant's arguments filed 1/23/2006 have been fully considered but they are not persuasive.

The argument that Haag does not disclose the cracking of an olefin-rich feedstock in the presence of hydrogen to enhance the stability of the catalyst as involved in applicants' invention is not persuasive since as discussed the above rejection and as disclosed in the Haag reference. The process disclosed by Haag is a hydrocracking of an olefinic feedstock as affirmed by the Decision of the Board of Appeals in the parent application 09/594,059).

Regarding adding the hydrogen to the olefinic feedstock before the contacting of the hydrocarbon with the catalyst has been discussed in the above rejection.

Regarding the Hydrocracking of an olefin in the presence of hydrogen discussed in the above rejection and affirmed by the Board of Appeal in the parent application 09/594,059.

The argument that Haag fails to disclose that the effluent and the product have olefin contents with the range ±15% is not persuasive since as affirmed by the Board of Appeals in parent application 09/594,059, this is only the matter of optimization.

Regarding the argument about the hydrogen partial pressures, applicants are suggested to review the decision of the Board of Appeals of parent application 09/594,059, namely page 8.

Regarding claims 5, 12, 13, and 21, applicants are suggested to review the decision of the Board of Appeals of parent application 09/594,059, namely pages 9 and 10.

Regarding claims 6-11, 14, 26-29, and 31-35, the same argument have been responded by the Board of Appeals on pages 11-14 (09/594,059).

Regarding claims 14 and 31, the Board of Appeals has their opinion on page 13 of the Decision (09/594,059).

Other arguments have been fully responded by Board of Appeals in the parent case. Applicants are suggested to review the Decision fully.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

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